

FORM PTO-1390 (REV. 11-2000)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				1163-0385P	
				U.S. APPLICATION NO. (If known, see 37 CFR 1.5)	
INTERNATIONAL APPLICATION NO.		INTERNATIONAL FILING DATE		PRIORITY DATE CLAIMED	
PCT/JP00/03731		June 8, 2000		NONE	
TITLE OF INVENTION					
NAVIGATION DEVICE					
APPLICANT(S) FOR DO/EO/US					
ASAHARA, Tomoyuki and UENO, Kiyoko					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1). 4. <input type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau. WO 01/94886 A1 c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is transmitted herewith. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4) 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)). <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). 					
Items 11. to 20. below concern document(s) or information included:					
<ol style="list-style-type: none"> 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98, Form PTO-1449(s), and International Search Report (PCT/ISA/210) with 6 document(s). 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. 14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 15. <input type="checkbox"/> A substitute specification. 16. <input type="checkbox"/> A change of power of attorney and/or address letter. 17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825. 18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 20. <input checked="" type="checkbox"/> Other items or information: <ol style="list-style-type: none"> 1.) Form PCT/IB/308 3.) Five (5) Sheets of Formal Drawings 					

Form PTO-1390 (REV 11-2000) page 2 of 2

PATENT
1163-0385P

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: ASAHARA, Tomoyuki et al.
Int'l. Appl. No.: PCT/JP00/03731
Appl. No.: New Group:
Filed: January 14, 2002 Examiner:
For: NAVIGATION DEVICE

PRELIMINARY AMENDMENT

BOX PATENT APPLICATION

Assistant Commissioner for Patents
Washington, DC 20231

January 14, 2002

Sir:

The following Preliminary Amendments and Remarks are respectfully submitted in connection with the above-identified application.

AMENDMENTS

IN THE SPECIFICATION:

Please amend the specification as follows:

Before line 1, insert --This application is the national phase under 35 U.S.C. § 371 of PCT International Application No. PCT/JP00/03731 which has an International filing date of June 8, 2000 which designated the United States of America.--

REMARKS

The specification has been amended to provide a cross-reference to the previously filed International Application.

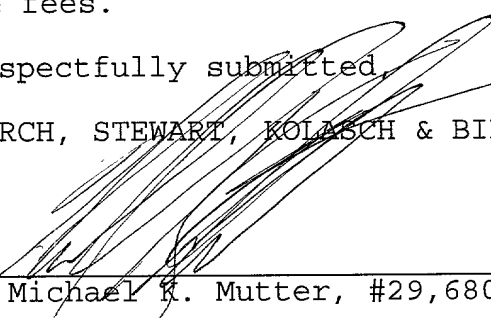
Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By


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MKM/rem
1163-0385P

5/Prb

SPECIFICATION

Navigation Device

TECHNICAL FIELD

The present invention relates to a navigation device which searches a route to a destination.

BACKGROUND ART

When a destination is set, a navigation device searches an optimal route from a current position to the destination and performs guiding to the destination by indicating the route.

In order to assist in understanding the route to the destination, the navigation device has the function of listing guide points (for example, intersections on the route) and displaying the direction of traffic at those guide points for example.

However, it is sometimes the case that a user wishes to bypass a certain guide point for some reason. For this purpose, the navigation device has the function of re-searching the route to bypass the guide point when the user sets a guide point to be bypassed.

For example, when there are ten guide points and a section from the third to the seventh of these guide points undergoes chronic traffic congestion, the route is re-searched in order to bypass the fourth, fifth and sixth guide points if those guide points are respectively designated as guide points to be bypassed.

Since the conventional navigation device is constituted as above, the route is re-searched in order to bypass guide points when a user designates the guide points which should be bypassed. However, the problem arises that a cumbersome operation must be performed in order to designate a plurality of guide points individually when it is desired to bypass a section across the plurality of guide points.

The present invention is proposed to solve the above problem and has the object of providing a navigation device which can search a route to bypass a section connecting arbitrary guide points without performing a cumbersome setting operation.

DISCLOSURE OF THE INVENTION

A navigation device according to the present invention receives a bypass setting for a section connecting arbitrary guide points and re-searches a route to a destination in accordance with the result of the setting.

In this manner, the advantageous effect is obtained that it is possible to search a route which bypasses the section connecting the arbitrary guide points without performing a cumbersome setting operation.

The navigation device according to the present invention may be adapted to receive a bypass setting for arbitrary guide points.

In this manner, the advantageous effect is obtained that it is possible to search a route which avoids the arbitrary guide points.

The navigation device according to the present invention may be provided with a storage means for storing the bypass settings received by a receiving means. When a route searching means searches a route to the destination, reference is made to the bypass settings stored in the storage means.

In this manner, the advantageous effect is obtained that a single bypass setting makes it possible to search a route which bypasses the section connecting the arbitrary guide points without performing the bypass setting on subsequent occasions.

The navigation device according to the present invention may be adapted to indicate the bypass settings stored in the storage means and to receive a modification to the bypass settings.

In this manner, the advantageous effect is obtained that it is possible to modify the status of the bypass in response to the condition.

The navigation device according to the present invention may be adapted to indicate the bypass settings stored in the storage means before the route searching means searches a route to a destination.

In this manner, the advantageous effect is obtained that it is possible to confirm bypass conditions before searching the route to the destination.

The navigation device according to the present invention may be adapted so that the storage means adds the date and time of the bypass to the bypass setting and stores it.

In this manner, the advantageous effect is obtained that it is

possible to indicate the status of the bypass considering the date and time of previous bypass settings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a navigation device according to a first embodiment of the present invention.

Fig. 2 describes an example of displaying a listing of guide points.

Fig. 3 shows a navigation device according to a fourth embodiment of the present invention.

Fig. 4 shows a navigation device according to a fifth embodiment of the present invention.

Fig. 5 describes the details of bypass settings.

Fig. 6 describes the details of bypass settings.

BEST MODE OF CARRYING OUT THE INVENTION

In order to describe the invention in greater detail, the preferred embodiments will be outlined below with reference to the accompanying figures.

Embodiment 1

Fig. 1 shows a navigation device according to a first embodiment of the present invention. In the figure, reference numeral 1 denotes an operation key which is operated when a user set a destination or the like. 2 is a map database which stores map data. 3 is a route searching section which searches an optimal route to a destination referring to the map database 2 when the destination is set using the operation key 1. A route searching means is constituted by the map database 2 and the route searching section 3.

4 is a list-display section which lists guide points on the route searched by the route searching section 3 and displays the guide points on a display 5. 5 is a display on which a list of the guide points are displayed. A list display means is constituted by the list-display section 4 and the display 5.

6 is a bypass setting receiving section (receiving means) which receives a bypass setting for a section connecting two guide points or an arbitrary guide point. The bypass setting receiving section 6 outputs a

command for re-searching of the route to the destination to the route searching section 3 on receiving the bypass setting.

Next, the operation of the navigation device according to the first embodiment will be described below.

Firstly, when a user sets a destination using the operation key 1, the route searching section 3 searches an optimal route to the destination referring to the map database 2.

In this manner, a guide map showing the route to the destination is displayed on the display 5. In order to assist in understanding the route to the destination, the list-display section 4 lists the guide points on the route searched by the route searching section 3 (for example, intersections on the route) and displays such guide points on the display 5.

Fig. 2 describes an example of displaying a list of guide points. In this example, five guide points are displayed, the distance to the guide points and the direction of traffic at the guide points are also displayed.

However, when a user desires to bypass passing through a section connecting arbitrary guide points for some reason, it is possible for a user to request re-searching of the route by performing a bypass setting with the operation key 1.

For example, when it is desired to bypass the section connecting the first to the fifth guide points, the first guide point and the fifth guide point are designated with the operation key 1 as shown in Fig. 2, and the bypass setting receiving section 6 receives a bypass setting with respect to the section connecting the first to fifth guide points. As a result of receiving the bypass setting, the bypass setting receiving section 6 outputs the result of setting to the route searching section 3 and commands the route searching section 3 to re-search the route to the destination.

It is noted that when it is desired to bypass a section across a plurality of guide points in the conventional navigation device described above, it is necessary to perform a bypass setting on the second guide point, the third guide point and the fourth guide point as a result of the fact that the plurality of guide points must be designated individually.

As a result, the route searching section 3 searches a route which does not contain the section connecting the first to the fifth guide points, and displays a guide map showing that route on the display 5. Furthermore, in the same manner as the above, the list-display section 4

lists the guide points on the route searched by the route searching section 3 and displays those guide points on the display 5.

As clearly shown by the foregoing description, in the first embodiment, when a bypass setting on a section connecting arbitrary guide points is received by the bypass setting receiving section 6, the route searching section 3 re-searches a route to a destination in accordance with the setting. Thus, the advantageous effect is obtained that even when it is desired to bypass a section across a plurality of guide points, it is possible to search a route bypassing the section connecting arbitrary guide points without designating the plurality of guide points individually.

Embodiment 2

In the first embodiment described above, a bypass setting for a single section is received. However, the navigation device may be adapted to receive a bypass setting for a plurality of sections, the same advantageous effect as the first embodiment is also obtained in such a case.

However, when receiving the bypass setting for a plurality of sections, it is required to confirm whether the designated portion is the front of the section or the rear of the section. Therefore, for example, a key "A" in the operation key 1 is used as a key to allocate the front of the section and a key "B" in the operation key 1 is used as a key to allocate the rear of the section.

Embodiment 3

In the first embodiment described above, a bypass setting for an arbitrary section is received. However, the navigation device may be adapted such that the bypass setting receiving section 6 receives a bypass setting for an arbitrary guide point.

That is to say, a mode for receiving a bypass setting for an arbitrary section and a mode for receiving a bypass setting for an arbitrary guide point are prepared, a user can select an arbitrary mode in order to perform a bypass setting on the arbitrary section or a bypass setting on the arbitrary guide point.

In this manner, the advantageous effect is obtained that it is also possible to search a route which bypass the arbitrary guide point.

Embodiment 4

Fig. 3 shows a navigation device according to a fourth embodiment of the present invention. In the figure, components which are the same as or similar to those described with reference to Fig. 1 are designated by the same reference numerals and additional description is omitted.

Reference numeral 7 denotes a bypass setting storage section (storage means) which stores bypass settings received by the bypass setting receiving section 6.

Next, the operation of the navigation device according to the fourth embodiment will be described below.

In the first to third embodiments, when a user uses the operation key 1 to set a destination, the route searching section 3 searches an optimal route to the destination referring to the map database 2. On the other hand, in the fourth embodiment, the navigation device is adapted such that the bypass setting storage section 7 stores previous bypass settings received by the bypass setting receiving section 6. Thus, when the route searching section 3 searches a route to the destination, the route can be searched referring to the previous bypass settings stored in the bypass setting storage section 7.

In this manner, the advantageous effect is obtained that once a bypass setting is performed, it is possible to search a route bypassing an arbitrary guide point or a section connecting arbitrary guide points without subsequent bypass settings.

Embodiment 5

Fig. 4 shows a navigation device according to a fifth embodiment of the present invention. In the figure, components which are the same as or similar to those described with reference to Fig. 3 are designated by the same reference numerals and additional description is omitted.

Reference numeral 8 denotes a bypass setting modification section (modification means) which displays bypass settings stored in the bypass setting storage section 7 on the display 5 and which receives modifications to the bypass settings.

Next, the operation of the navigation device according to the fifth embodiment will be described below.

In the fourth embodiment described above, the bypass setting

storage section 7 stores previous bypass settings received by the bypass setting receiving section 6, and the route searching section 3 refers to the previous bypass settings stored in the bypass setting storage section 7 when searching a route to the destination. On the other hand, in this fifth embodiment, the bypass settings stored in the bypass setting storage section 7 are displayed on the display before the route searching means 3 searches the route to the destination (refer to Fig. 5), and modifications to the bypass settings are received by the bypass setting modification section 8.

In this manner, the advantageous effect is obtained that it is possible to confirm a bypass condition before searching the route to the destination. Furthermore, since it is possible to modify the bypass setting by merely selecting "perform" or "non-performance" of the bypass, the advantageous effect is obtained that it is possible to modify the status of the bypass in a simple manner. That is to say, since it is possible to modify the status of the bypass without a resetting or deletion operation on the bypass setting, it is possible to simply modify the set details of the bypass in accordance with the current condition.

Embodiment 6

In the fourth and fifth embodiments described above, the bypass setting storage section 7 stores previous bypass settings received by the bypass setting receiving section 6. However, as shown in Fig. 6, the bypass setting storage section 7 may add a bypass date and time to the bypass setting.

In this manner, the advantageous effect is obtained that it is possible to set the status of the bypass considering the date and time of previous bypass settings. That is to say, even in the event of section which experiences chronic traffic congestion, since congestion in such a section depends on the time of day, it is possible to set the status of the bypass in extreme detail considering the date and time of the previous bypass settings.

INDUSTRIAL APPLICABILITY

As shown above, a navigation device according to the present invention is adapted to re-search a route to a destination upon receipt of the bypass setting for geographical points when it is desired to bypass certain

geographical points. This may be the case for example when there are points of high traffic congestion on the route to the destination.

WHAT IS CLAIMED IS:

1. A navigation device having a route searching means which searches a route to a destination when the destination is set, and a list-display means which lists and displays guide points on the route searched by the route searching means, said navigation device comprising:

a receiving means which receives a bypass setting for a section connecting arbitrary guide points when the list-display means lists and displays the guide points on the route,

wherein when said receiving means receives the bypass setting for the section connecting the arbitrary guide points, said route searching means re-searches the route to the destination in accordance with the setting result.

2. The navigation device according to Claim 1, wherein said receiving means receives a bypass setting for an arbitrary guide point.

3. The navigation device according to Claim 1, wherein said navigation device further comprises a storage means which stores the bypass setting received by the receiving means, and wherein when said route searching means searches the route to the destination, said route searching means refers to the bypass settings stored in the storage means.

4. The navigation device according to Claim 3, further comprising a modification means which receives modifications on the bypass settings while indicating the bypass settings stored in the storage means.

5. The navigation device according to Claim 4, wherein said modification means indicates the bypass settings stored in the storage means before the route searching means searches the route to the destination.

6. The navigation device according to Claim 4, wherein said storage means stores the bypass setting to which a bypass time and date are added.

FIG.1

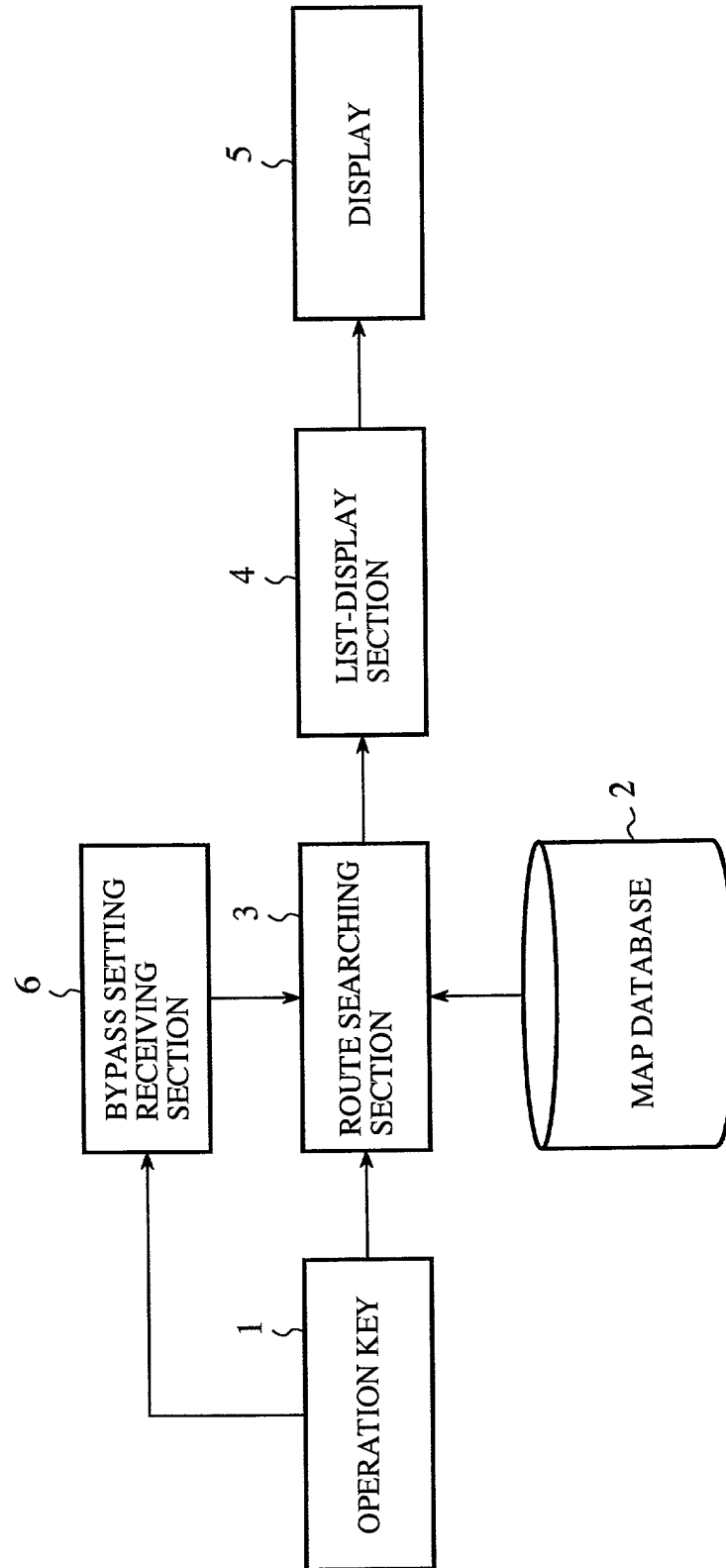


FIG.2

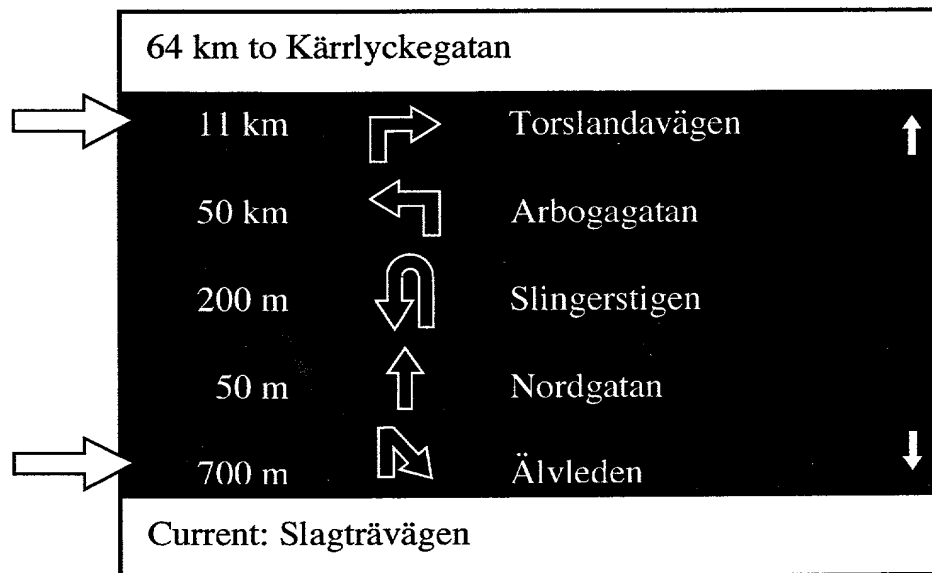
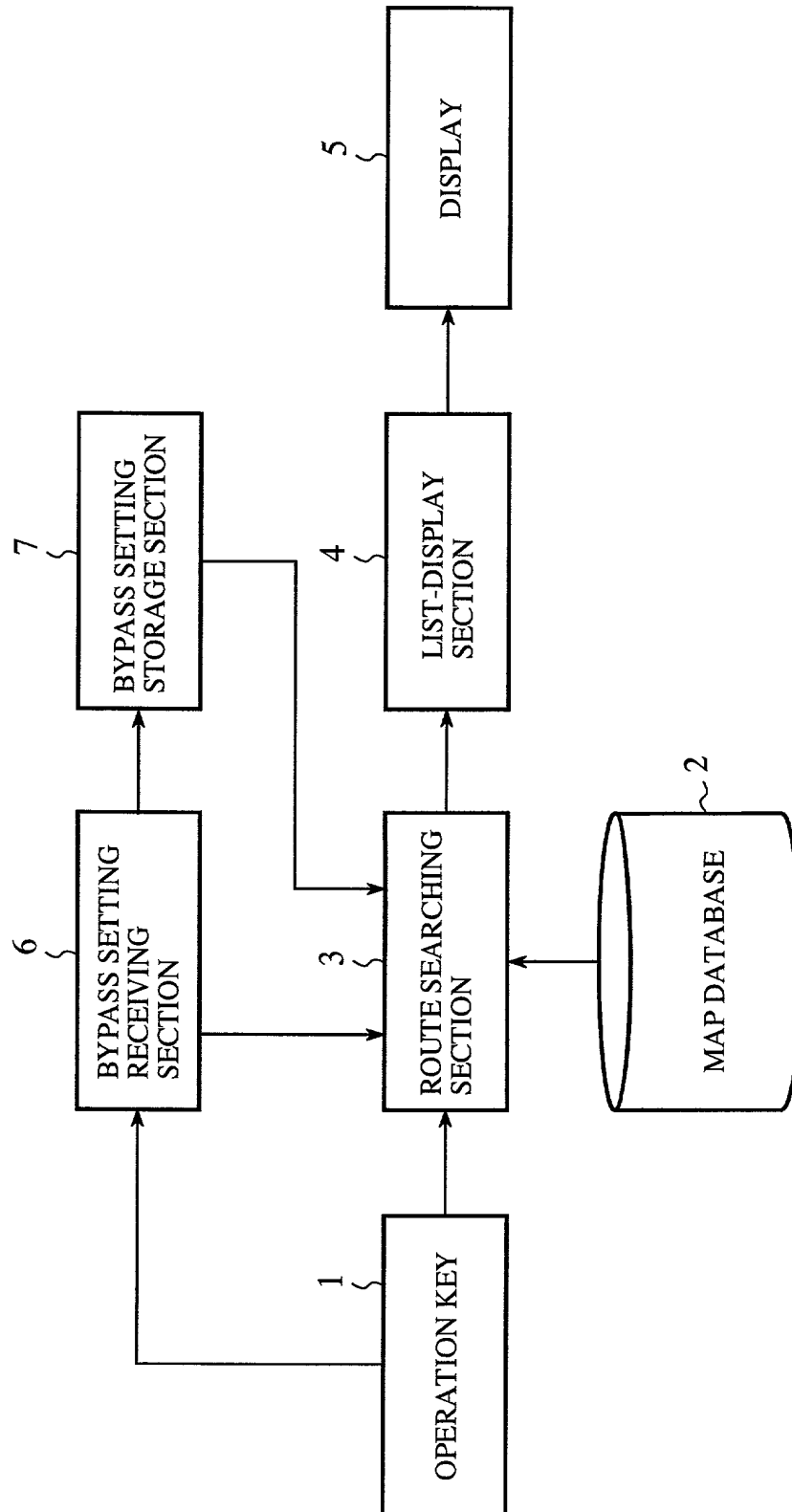


FIG.3



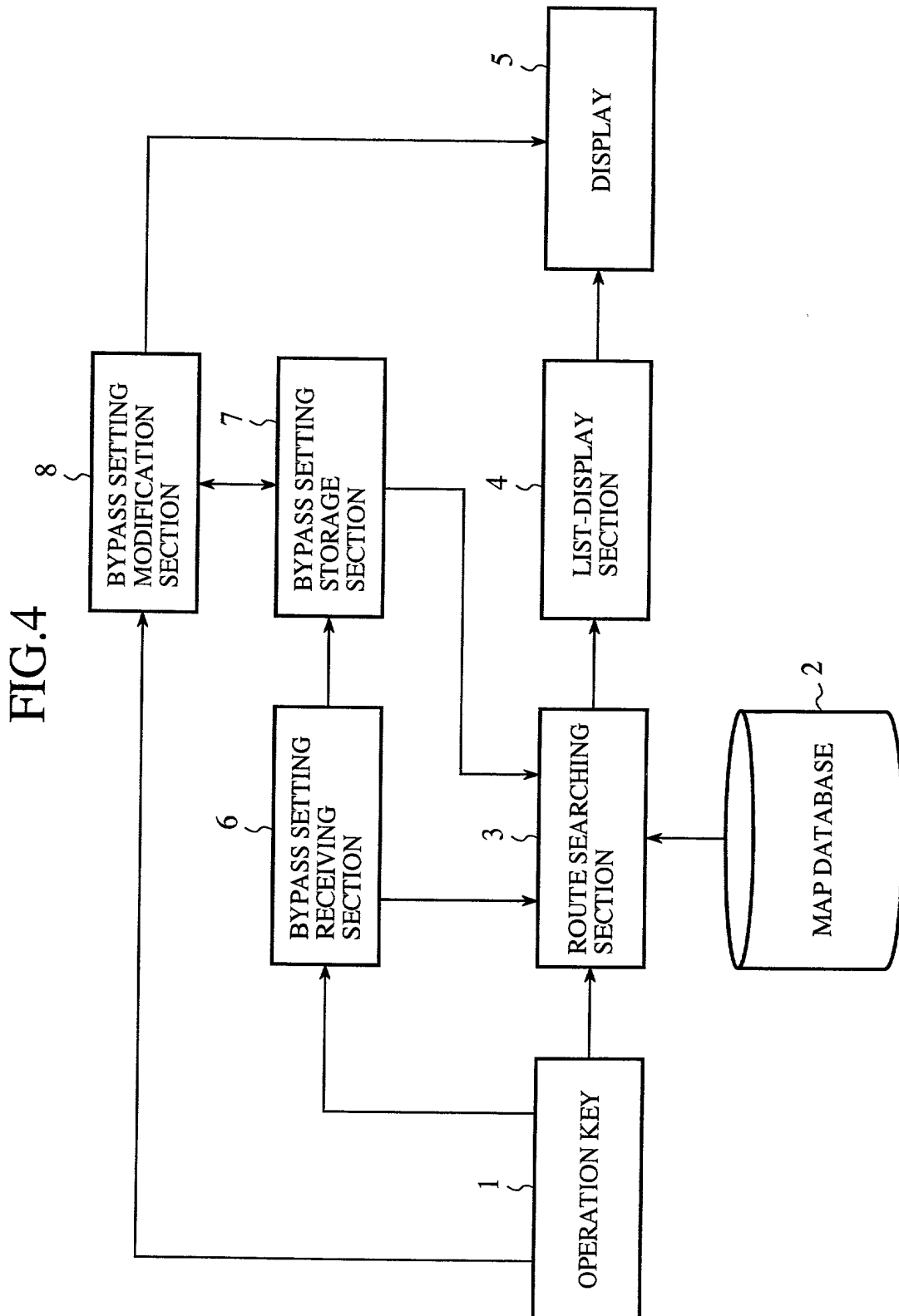


FIG.5

BYPASS PLACE NAME	BYPASS STATUS	
POINT A	<input type="checkbox"/> PERFORM	<input type="checkbox"/> NON-PERFORMANCE
SECTION B	<input type="checkbox"/> PERFORM	<input type="checkbox"/> NON-PERFORMANCE
POINT C	<input type="checkbox"/> PERFORM	<input type="checkbox"/> NON-PERFORMANCE

FIG.6

BYPASS PLACE NAME	BYPASS STATUS		BYPASS DATE/TIME	
POINT A	<input type="checkbox"/> PERFORM	<input type="checkbox"/> NON-PERFORMANCE	2000.3.1	8:23
SECTION B	<input type="checkbox"/> PERFORM	<input type="checkbox"/> NON-PERFORMANCE	2000.5.5	14:38
POINT C	<input type="checkbox"/> PERFORM	<input type="checkbox"/> NON-PERFORMANCE	2000.6.15	12:03

Declaration and Power of Attorney For Patent Application**特許出願宣言書及び委任状****Japanese Language Declaration****日本語宣言書**

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

"NAVIGATION DEVICE"

上記発明の明細書（下記の欄でx印がついていない場合は、本書に添付）は、

the specification of which is attached hereto unless the following box is checked:

☐ 月 日に提出され、米国出願番号または特許協定条約国際出願番号を _____ とし、
(該当する場合) _____ に訂正されました。☒ was filed on June 8, 2000
as United States Application Number or
PCT International Application Number
PCT/JP00/03731 and was amended on
_____ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

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私は、米国法典第35編119条(a)-(d)項又は365条(b)項に基づき下記の、米 国以外の国の少なくとも一カ国を指定している特許協力条約365(a)項に基づく国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

Prior Foreign Application(s) 外国での先行出願

(Number) (番号)	(Country) (国名)
(Number) (番号)	(Country) (国名)

私は、第35編米国法典119条(e)項に基づいて下記の米 国特許出願規定に記載された権利をここに主張いたします。

(Application No.) (出願番号)	(Filing Date) (出願日)
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私は、下記の米国法典第35編120条に基づいて下記の米 国特許出願に記載された権利、又は米 国を指定している特許協力条約365条(c)に基づき権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第35編112条第1項又は特許協力条約で規定された方法で先行する米 国特許出願に開示されていない限り、その先行米 国出願書提出日以降で本出願書の日本国内または特許協力条約国際提出日までの期間中に入手された、連邦規則法典第37編1条56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。

(Application No.) (出願番号)	(Filing Date) (出願日)
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私は、私自身の知識に基づいて本宣言書中で私が行なう表明が真実であり、かつ私の入手した情報と私の信じることに基づき表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行えば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed
優先権主張なし

(Day/Month/Year Filed) (出願年月日)	<input type="checkbox"/>
(Day/Month/Year Filed) (出願年月日)	<input type="checkbox"/>

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

(Application No.) (出願番号)	(Filing Date) (出願日)
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I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係属中、放棄済)	(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係属中、放棄済)
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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委任状: 私は下記の発明者として、本出願に関する一切の
手続きを米特許商標局に対して遂行する弁理士または代理人
として、下記の者を指名いたします。(弁理士、または代理
人の氏名及び登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby appoint
the following attorney(s) and/or agent(s) to prosecute this
application and transact all business in the Patent and Trademark
Office connected therewith (list name and registration number)

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RAYMOND C. STEWART (Reg. No. 21,066)
JOSEPH A. KOLASCH (Reg. No. 22,463)
ANTHONY L. BIRCH (Reg. No. 26,122)

JAMES M. SLATTERY (Reg. No. 28,380)
BERNARD L. SWEENEY (Reg. No. 24,448)
MICHAEL K. MUTTER (Reg. No. 29,680)
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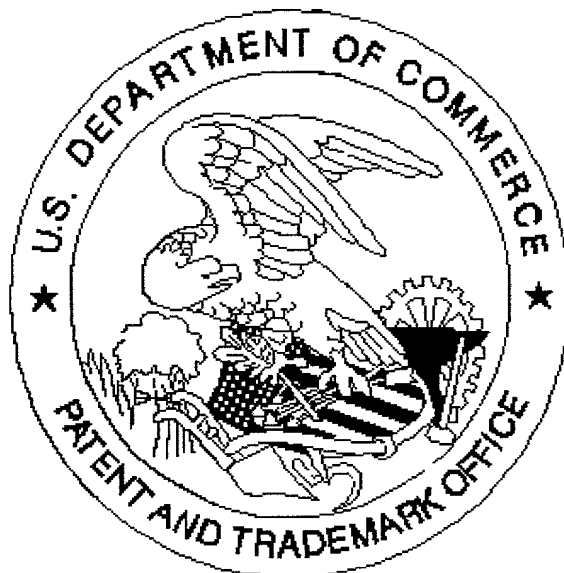
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